

Serial No. : _____

Filed: _____

Applicant: John P. Hanus

Title: "Tear String Opening System for Flexible Container"

Group Art Unit: _____

Examiner: _____

Provisional Patent Reference Letter

Date: May 19, 2004

Commissioner of Patents and Trademarks
Washington, District of Columbia 20231

Commissioner::

A Provisional Patent as identified below was previously filed in the Patent and Trademark Office. As this patent relates to the above patent application, applicant requests that this patent be retained and referenced to the above application.

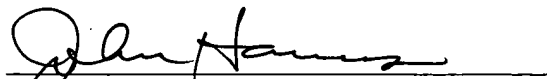
Provisional Patent Title: **"Tear String Opening System and Container with Tear String Opening System"**

Provisional Patent Application Number:: **60/464,201**

Provisional Patent Filing Date: **4/22/2003**

Confirmation Number: **1747**

Very Respectfully,


Signed

John P. Hanus
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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
60/464,201	04/22/2003		80		2		

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CONFIRMATION NO. 1747

FILING RECEIPT



OC000000010188299

Date Mailed: 06/05/2003

Receipt is acknowledged of this provisional Patent Application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

John P. Hanus, Hartland, WI;

If Required, Foreign Filing License Granted: 06/04/2003

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Tear string opening system and container with tear string opening system

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING

**VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(b))—INDEPENDENT INVENTOR**

Docket Number (Optional)

Applicant or Patentee: John P. Hanus

Application or Patent No.: 4-15-03

Filed or Issued: _____

Title: Tear String Opening System and Container with Tear String
Opening System

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☐ the specification filed herewith with title as listed above.
☐ the application identified above.
☒ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below.

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern, or organization is listed below.

Separate verified statements are required from each named person, concern, or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

John P. Hanus
NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

Signature of inventor

Signature of inventor

Signature of inventor

4-15-03

Date

Date

Date

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (b)(2).

Docket Number		Type a plus sign (+) inside this box →	
INVENTOR(s)/APPLICANT(s)			
LAST NAME	FIRST NAME	MIDDLE NAME/INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)
Hanus	John	P.	611 Dundee Lane Hartland, WI 53029
TITLE OF THE INVENTION (280 characters max)			
Tear String Opening System and Container with Tear String Opening System			
CORRESPONDENCE ADDRESS (including country if not United States)			
611 Dundee Lane Hartland, WI 53029			
ENCLOSED APPLICATION PARTS (check all that apply)			
<input checked="" type="checkbox"/> Specification	Number of Pages	4	<input checked="" type="checkbox"/> Small Entity Statement
<input checked="" type="checkbox"/> Drawing(s)	Number of Sheets	2	<input type="checkbox"/> Other (specify)
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)			
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees		FILING FEE AMOUNT (\$)	\$80.00
<input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: 			

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE _____

Date 4-15-03TYPED or PRINTED NAME John P. HanusREGISTRATION NO.
(if appropriate)☐ Additional inventors are being named on separately numbered sheets attached hereto**USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT**

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Tear String Opening System and Container with Tear String Opening System

Abstract

A tear string system for use in opening a container having opposing ends includes a first, base laminate which features a weakened area and a second outer laminate, between which a 'tear string' or 'tear strip' is positioned in close proximity to the weakened area in the first or base laminate, the tear string being designed to tear through the second, outer laminate, thereby exposing the weakened base laminate. The tear control string or strip is located between the two laminates which are used as container construction material and in close proximity to the weakened area of the base laminate. The tear string permits tearing of the second or outer layer with a given force while the first or base layer, which is weakened through perforating or other means, is designed to burst open after the tear string is removed and the base laminate is exposed. The tear string or strip may include a tab at one of the ends of the container which is formed by cuts extending from at least one of the edges of the container and is designed in such manner that grabbing the tab will direct the tear force toward the tear strip, thereby promoting the direction of the tear. The invention also includes a container including the tear strip.

Field of The Invention

The present invention relates to container opening systems and containers which would utilize such opening systems. More particularly, the present invention relates to container opening systems for use in bag type containers which are used to dispense snack foods or the like. More specifically, the invention relates to microwave popcorn bags and the opening mechanisms of the same, although this same technology could be utilized in other containers that would benefit from the described opening system.

Background of the Invention

Containers, such as bags and other packages, must be securely closed to contain the products stored within. The container must remain closed during storage and shipping and must withstand common use or under certain circumstances, rough handling. When the contents of the container are to be used, the consumer or end-user must open the

container to remove the contents. Ideally, a container can be opened by the user without the requirement of tools or special skills. Achieving both secure closure while providing easy opening for a container is inherently difficult; many containers are designed to be secure for shipment but are difficult to open. For example, plastic bags used for potato chips are notoriously difficult to open.

Containers can be opened in a variety of ways. ConAgra patent (6,060,095) describes a system wherein a weakening technique and/or a strip or strips of tape, some of which are perforated, alternately reinforce and weaken an area which will tear out from the container. Con Agra patent (6,060,096) includes a burstable seam on the top of the bag. Union Camp Patent (5,770,839) describes a system which includes a frangible strip to allow opening of the bag. 3-M patent (6,354,739) includes a tearable tape strip which is located on the outside of the container with the tape itself featuring alternating strong and weak areas, possibly rib shaped, which allow it to tear in a straight line. Other systems including Patent (5,662,420) and Patent (3,276,669) describe techniques which include a tear strip or tear string which is positioned on a surface of the container material and are designed to tear through the entire package construction material from the inside to the outside.

What has not been shown until the present invention is a system which includes a two-phase opening system, wherein the tear string or tear strip facilitates a preliminary package opening, with final opening accomplished through a secondary 'bursting' technique. The idea of the invention is to create a cost effective means of opening a container which requires minimum production equipment modifications, retains the integrity of the package prior to opening while also providing an easy and effective means of opening the container.

Summary of the Invention

A container for storing material includes a tear string or tear strip (herein to be called a 'tear string') which is located between two laminates of container construction material and permits tearing of itself and the outer, second laminate of material, thereby exposing the lower or base laminate of container construction material. This first, or base laminate will have been 'weakened' by design in an area directly below the area where the tear string is located. Weakening of this line can be accomplished through cutting or perforating the first lower laminate, although other means of weakening could be used

including but not limited to: compression of the material, heat, laser treatment, chemical or other means. When the tear string is pulled, the tear string will cut through the outer, second laminate of material exposing the weakened first, base laminate. This first, base laminate will then be able to be 'burst' along the weakened line, thereby fully opening the container. Opening the container is, in essence, a two-phase operation; tearing of the second, outer laminate using a tear string and final opening of the first, base laminate through bursting of the weakened area or seam.

The tear string can be made of, but not limited to: cotton, polyester or other materials or combination of materials and, if viewed in cross section, will appear round, wherein a tear strip can be made of Mylar, LLDPE, LDPE or other type tape materials and would typically be 'flat' in design if viewed in cross section.

The invention could also be used with a single wall construction technique wherein the string will be positioned against the container construction material with a narrow layer of material over the top of the tear string, the covering material featuring a weakened area directly below the tear string. This technique will facilitate the tear string opening system without a secondary laminate required throughout the container construction.

Description of the drawings

FIG 1 Describes the construction technique employed with the tear string located between two laminates of container construction material, the tear string shown being positioned in near proximity to the weakened area of the first, base laminate.

FIG 2 Shows an end-on view or cross sectional view which shows the position of the tear string in relation to the two laminates of material and the position of the weakened or perforated lower laminate.

FIG 3 Shows the action of the tear string tearing through the outer laminate exposing the lower first, base laminate which includes a weakened area, in this case perforations, in close proximity to the tear string, This weakened area will be designed to be able to 'burst' to fully open the container.

FIG 4 Shows the tear string system as applied to a single laminate container construction material. A narrow strip of material is included over the top of the tear string. The narrow strip of material features a weakened area in close proximity to the tear strip.

FIG 5 Shows a face-on view of the container construction material showing a preferred tab cut design, with the position of the tear string located between the two laminates shown in dotted line.

Description of the Preferred Embodiments

In a preferred embodiment and as best described in Figs 1 through 3, production of the container construction material (A) which includes the tear string opening system is accomplished by laminating a tear string (3) between the base or first laminate of material (1) which has been weakened (4) in an area which will be located directly below the tear string, with the second or outer laminate (2) adhered to the first or lower laminate thereby sandwiching the tear string between the two laminates.

In a secondary embodiment as best described in Fig 4, the tear string will be sandwiched between the primary single layer of package material (5) and a narrow laminate of material (6) which includes a weakened area (4) in close proximity to the tear string (3) attached to the inside wall of the package material. This construction technique will allow the same tear string opening design without the requirement of a second laminate throughout the container construction..

In either type construction, it will be advantageous to include a tab type device on the end of the container to facilitate access to the pull string. As best shown in FIG 5, a pull tab (7) can be included by producing small angle cuts (8) in the edge of the container material which are designed to direct the force of the tear toward the tear string which is embedded between the two laminates of material. The pull-tab can be produced as the container is cut from the roll of material in the final stages of production. A cylindrical die would preferably be used for this purpose.

FIG 1

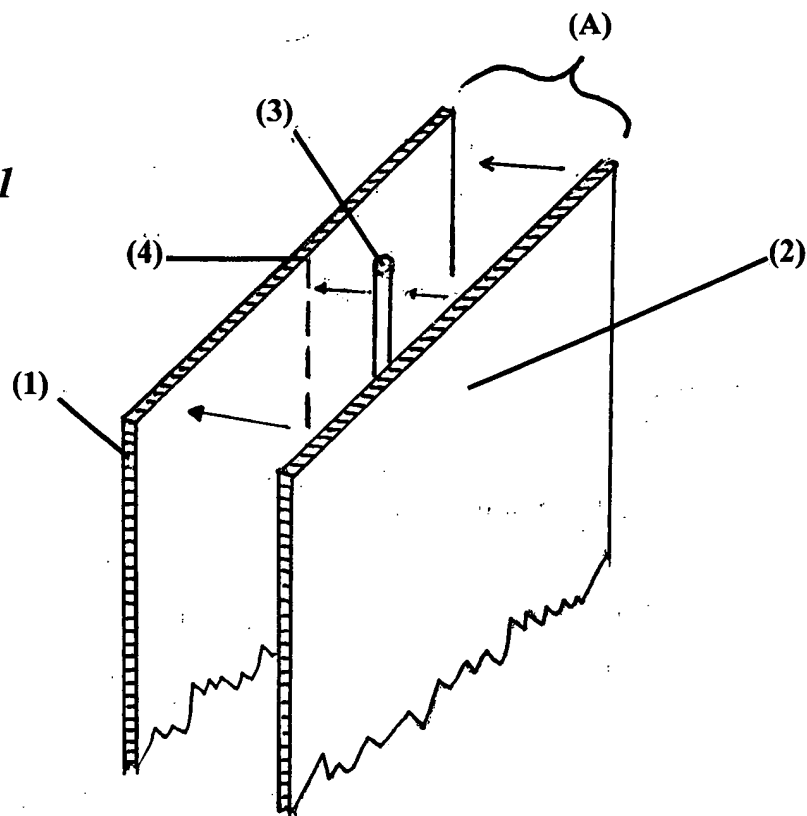


FIG 2

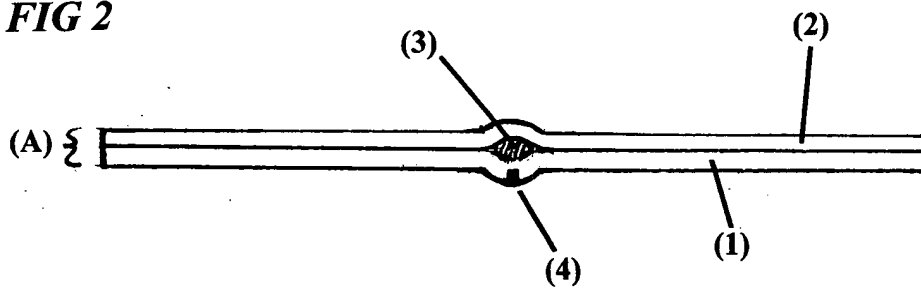


FIG 3

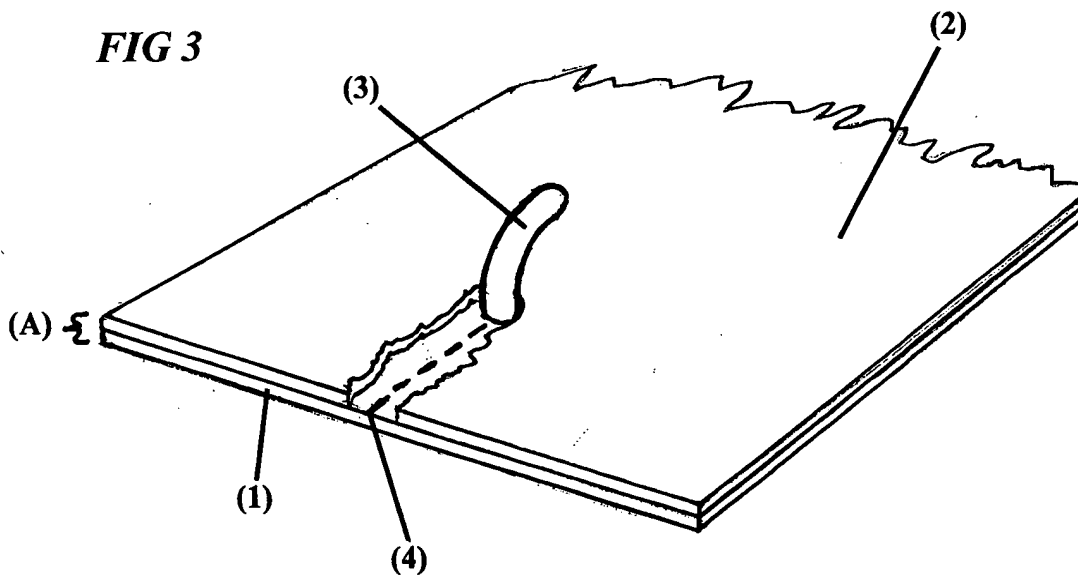


FIG 4

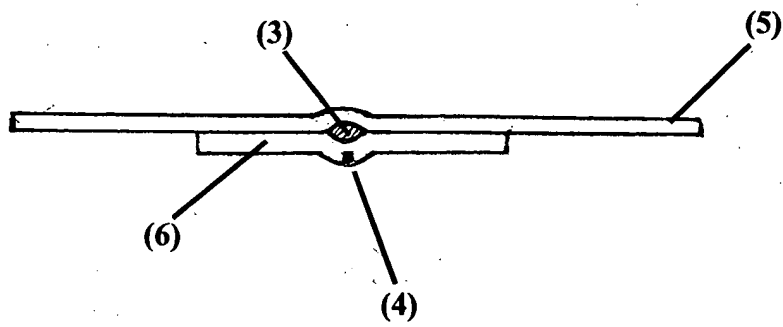


FIG 5

